

REMARKS

Applicants thank the Examiner for the courtesy extended to Applicants' attorney during the interview held October 21, 2003, in the above-identified application. During the interview, Applicants' attorney explained why the applied prior art, discussed in more detail below, does not present a *prima facie* case of obviousness. The discussion is summarized and expanded upon below.

The rejections of:

Claims 32-36, 38, and 42-44 under 35 U.S.C. § 103(a) as unpatentable over U.S. 5,328,558 (Kawamura) in view of U.S. 5,775,416 (Heimanson et al);

Claims 39-41 and 48-51 under 35 U.S.C. § 103(a) as unpatentable over Kawamura in view of Heimanson et al, and further in view of U.S. 5,616,208 (Lee); and

Claims 45-47 under 35 U.S.C. § 103(a) as unpatentable over Kawamura in view of in view of Heimanson et al, and further U.S. 5,919,336 (Kikuchi et al),

are respectfully traversed.

As recited in new Claim 32, the present invention is a surface treatment apparatus comprising:

a plasma generation section adapted for generating plasma from a plasma generating gas;

a treatment vessel connected to the plasma generation section and including a susceptor adapted for placement of a subject to be treated thereon;

a cooling device adapted for cooling the subject placed on the susceptor;

a supply section adapted for adding a reactive gas to an activated plasma generating gas activated by the plasma generation section and caused to flow toward the subject cooled by the cooling device;

a heating device adapted for heating a product produced by a reaction between the activated reactive gas and the surface layer of the subject, and

a separating device adapted for separating the substrate from the susceptor prior to heating the product.

Kawamura discloses etching a SiO₂ film on a silicon wafer using an NF₃/H₂ mixture as a feed gas for an etchant, wherein the mixture is made into plasma, and activated species of fluorine, hydrogen and nitrogen are supplied downstream to allow the species to be adsorbed in and on the SiO₂ film (Abstract). As Applicants' attorney pointed out to the Examiner during the above-referenced interview, Kawamura is concerned with carrying out the etching on a wafer that has been cooled below 0°C and is not at all concerned with heating the wafer.

Heimanson et al is drawn to a temperature controlled chuck for vacuum processing.

As Applicants' attorney argued during the above-referenced interview, without the present disclosure as a guide, one skilled in the art would not have combined Kawamura and Heimanson et al. As discussed above, Kawamura is concerned with etching of a silicon wafer cooled to a temperature below 0°C. What possible reason could there be to include a heating device in Kawamura? During the interview, the Examiner stated that one skilled in the art would be motivated to use the device of Kawamura for other methods, such as those which would require a heating device. However, motivation to use the apparatus of Kawamura for other than the particular method disclosed in Kawamura has not been provided by the Examiner. Moreover, the temperature controlled chuck in Heimanson et al is used in a different environment from that of Kawamura. Nor does Kawamura disclose a separate supply section adapted for adding a reactive gas.

Neither Lee nor Kikuchi et al remedy the above-discussed deficiencies in the combination of Kawamura and Heimanson et al.

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During the above-referenced interview, the Examiner commented that the applied prior art did not suggest the presently-recited separating device limitation. Thus, notwithstanding patentability for reasons discussed above, the Examiner now appears to agree that the present claims are patentable over the prior art of record.

For all the above reasons, it is respectfully requested that the rejections over prior art be withdrawn.

All of the presently pending claims in this application are now believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Respectfully submitted,

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